



WHO KILLED LAB ROUNDS?

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I did not know in 1980 when I applied for Infectious Diseases fellowship training that the most dramatic pandemic of my lifetime had started. On June 5, 1981, less than four weeks before I started my fellowship, I read

the chilling news of a cluster of cases of *Pneumocystis* infection in five gay men in Los Angeles. In short order I learned about infections and tumors that I could barely pronounce. Unsurprisingly, my existing microbiology expertise was insufficient to deal with these unprecedented new problems. I was lucky that my training included regular daily rounds in a state-of-the-art clinical microbiology laboratory where mysteries were peeled away and techniques were clarified. The slow immersion in

microbiology lab rounds was the equivalent of lighting a single candle instead of cursing the darkness.

When I arrived at my current job in 1984, I tried to replicate micro lab rounds, which I convened three days a week in my new institution. Fellows, residents, and students would join me in the microbiology laboratory, and we would review the interesting cultures and stains with the laboratory technicians, supervisors, and the laboratory directors. We would discuss what was

happening to hospital flora and talk about the triumphs and limits of clinical microbiology. Over the years I ran over 3000 lab rounds, which shrank to two sessions per week and grew to cover nutritional and environmental quirks of microbes, newer techniques to improve and hasten species determination and susceptibility, challenges of microbial naming, microbial physiology and genetics, and the evolving role for molecular techniques. Because of a change in my job duties, I was no longer able to sustain lab rounds and no one offered to take over. So lab rounds expired on December 20, 2012. Time of death 12:02 PM.

I may have pulled the trigger, but was I the person who killed lab rounds?

I learned early that students studying microbiology in Year II of medical school acquire some limited expertise, such as looking at Gram stains and answering multiple choice questions, but that knowledge is offloaded somewhere between Step 1 of the USMLE exam and the beginning of Year IV. Some students retain more facts than others, but most cannot explain even the basic aspects of concepts such as gene regulation, transcription, translation, or mechanisms of resistance. Very few students delve into new discoveries because they are usually not directly applicable to clinical medicine. The practical understanding of the laboratory (such as it is) is conveyed by residents who, as it turns out, have an equally limited grasp of microbiology. And, unsurprisingly, beginning infectious diseases fellows continue to lack microbiology competence. Lab rounds mitigated this, but most learners were comfortable with the limits of their knowledge, and even the most intensive cheerleading for microbiology did not create a demand for this information. Lab rounds, while enjoyable for students and residents, ranked lower than other teaching activities and in a time-constrained setting was clearly expendable.

Over the years, lab rounds evolved from a more detailed review of

patient-focused results to an incorporation of the wonder and poetry of the microbial world as seen from the clinical laboratory perspective. In 1981, there was scant knowledge of phenomena such as biofilms, quorum sensing, bacterial persisters, or the human microbiome. Back then only a genius or a fool would have suggested that bacteria have any bearing on obesity, heart disease, or cancer. Even now, this knowledge has no direct clinical application and few practicing doctors or trainees keep up with this burgeoning field of research. Thirty years ago we had great, if naive, confidence that the discovery of new chemical agents to control bacterial infection would be never-ending. In hindsight, we also had a surprising nonchalance about the potential toxicity that these drugs can cause directly or via ecological disturbance.

I have also observed that the laboratory staff is less interested in lab rounds than they were three decades ago. This is, as best I can tell, an adaptive state brought on by a combination of a highly regulated work environment and a strong emphasis on efficiency. When I started my training, the laboratory was a revenue center with billing opportunities. Now the hospital laboratory has become just another cost center competing with other hospital entities for a share of a global payment. This marginalization has resulted in the disappearance (or at least partial outsourcing) of many hospital labs and lab tests. While this approach can save costs, the opportunity to inquire about results, double check unusual reports, or ask for clarification is diminished when the lab lives far from the patient.

Another factor that seems surprising to those who trained in the twentieth century is the reduced emphasis on laboratory medicine knowledge in accrediting exams such as the Internal Medicine and Infectious Diseases Boards. While it makes sense for question writers to accommodate “newer” areas such as HIV and transplant medicine, the decreased role of clinical microbiology expertise is

actually counterintuitive since modern patients who have complex problems, emerging new diseases, and changing patterns of resistance are more likely to depend on the lab than patients with yesterday’s more common problems. In fact, this deemphasis of microbiology is just one of the results of the general minimizing of the importance of basic science in the clinical years of medical school and during residency. I have never heard anyone say this, but the competition in laboratory governance between clinicians and microbiologists on one side and pathologists on the other could also be playing a role. The laboratory territorial battle has been ceded to others; infectious diseases clinicians are perceived as just another interested party.

Nostalgia is a false friend. Lab rounds evolved with the times and provided practical information such as how long it takes for a blood culture to be detected as positive, along with more abstract concepts such as when to question susceptibility data. Changes in medical practice and technology result from observations and breakthroughs that emerge from medical research. Although some research leads to an expansion of medical knowledge, the payoff in better patient outcomes may not be immediate. We face the challenge of weighing risks and benefits to apply the incomplete or ambiguous experience of clinical research to the real world of patient care. Even when the knowledge pool is incomplete, new developments occupy “mindshare” and we may find our brains filled with scraps of incomplete information until the moment we resolve the ambiguity and validate actionable approaches.

In the meantime, regulatory changes in medical education have irreversibly altered the rhythm and content of teaching. Daily workflow has been adjusted to meet the curricular needs of residents. The need to get the same amount of work finished in less time has been a challenge to many training programs. Sessions such as laboratory

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rounds are often a low priority for busy residents and fellows who need to finish time-sensitive patient care tasks.

How can we live in a golden age of microbiology yet find lab rounds dispensable? One hour per week can scratch the surface of the marvelous discoveries that animate contemporary microbiology, it can review and clarify “pearls” of knowledge that can improve the practical utility of the lab, and it can give real time awareness about our patients. But time, the principal currency of modern medicine, is spent to complete the myriad tasks required of doctors, and there is precious little left over. We have come to wait patiently for the laboratory to tell us what is important. When radiographic images are viewed anywhere in the hospital within minutes of the procedure and lab results are copied from the LCD screen to the progress note, discussion of advanced molecular techniques that result in the reclassification of a bacterium or how new diagnostic tests can be faster and more precise than standard techniques seems inefficient and possibly indulgent. Time spent discussing the nuances of microbial resistance is pleasurable but does not necessarily lead to direct changes in patient care. Learning why cocci are round and rods are usually but not always sausage-shaped and why we are covered with thousands of species of microbes very few of which have even been grown in a laboratory—well, when do we find the time for that? Perhaps the new discoveries in the human microbiome that are getting traction in real-world medical problems will spark a renewed interest in our microbial friends and nemeses. I know how and why lab rounds died, but I am not too worried about microbiology—it has plenty of life left in it.

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Dignity

It’s midnight for me
and midnight for her
means time of death
is coming soon.

She knows.
I see it in her eyes.
I feel her terror
her aloneness
her grief.

Her daughter cries
as she lies in vomit
in the bathroom
fallen off the
toilet.

Out of dignity
she dies.

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